

Section 15 — The Nowlin Harmonic Inertia Law (NHIL)

Section 15 formalizes the Nowlin Harmonic Inertia Law (NHIL), the FUNt-unified rule governing how inertia emerges, stabilizes, and scales across all particles. NHIL replaces mass as a primitive concept with harmonic anchoring, defined through φ -band resonance, HRB/HTB breathing, and lattice opposition. This law provides the mathematical foundation for why motion resists change, why heavier particles behave as they do, and how inertia collapses during scalar-field transport.

15.1 Core Definition of NHIL

- Inertia is not mass-dependent; it is harmonic-anchoring dependent.
- Anchoring strength is determined by φ -band alignment (φ^4 – φ^7 range).
- Inertia increases as the particle's breathing ratio approaches φ^7 .
- Inertia collapses when φ -energy exceeds φ^8 – φ^9 , entering scalar transport.
- [Insert NHIL overview diagram here]

15.2 Harmonic Anchoring Parameter (HAP)

- HAP defines how strongly a particle resists phase relocation.
- $HAP = (\Delta\varphi_{\text{resonance}} / \Delta\varphi_{\text{breathing}})$.
- High HAP = strong inertia; Low HAP = weak inertia.
- Electrons have the lowest HAP; protons the highest.
- [Insert HAP formula diagram here]

15.3 The HRB–HTB Inertia Curve

- HRB zone (low strain) = inertia dominated by buoyant harmonics.
- HTB zone (high strain) = inertia dominated by torsional harmonics.
- Crossing HRB→HTB increases inertial resistance sharply.
- The curve is φ -shaped, with peak anchoring near φ^7 .
- [Insert HRB–HTB curve diagram here]

15.4 Inertia Profiles for e^- , p^+ , n^0

- Electron inertia arises from minimal anchoring and large breathing radius.
- Proton inertia arises from high torsional anchoring and φ^6 resistance.

- Neutron inertia is mixed-mode: $\frac{1}{2}$ buoyant, $\frac{1}{2}$ torsional.
- All three map onto the same φ -based harmonic curve.
- [Insert particle inertia comparison diagram here]

15.5 Inertia Collapse Conditions

- Inertia collapses when φ -energy $> \varphi^8$ (soft collapse) or $> \varphi^9$ (full collapse).
- Collapse leads to scalar-field transport mode (see Section 14).
- Momentum becomes irrelevant; the system relocates by phase substitution.
- [Insert collapse pathway diagram here]

15.6 Applications of NHIL

- Explains quantum tunneling efficiency via inertial suppression.
- Enables prediction of inertial behavior in φ -lattice engines.
- Unifies motion resistance across classical and quantum regimes.
- Forms the backbone of FUNt's locomotion models and decay pathways.
- [Insert application block here]